

REMARKS

Claim Status

Claims 1, 2, 4, 6-10, 12 and 18-21 are presented for examination, with claims 1, 8, 12 and 18 being in independent form. Claims 3, 5, 7, 11, 13, 14, 16 and 17 have been withdrawn from consideration and claim 15 had been canceled. Claims 1, 2, 4, 6, 8, 9, 12 and 18 have been amended. Dependent claims 19-21 have been added. The amendments to claims 4, 6 and 12 are minor corrections to the claim wording, and are cosmetic in nature. Support for the amendment to independent claims 1, 8 and 18 may be found, for example, in Fig. 2c and at paragraph [0036] of U.S. Publication No. 2005/0069713. Support for the amendment to claims 2 and 9 may be found, for example, at paragraph [0032] of the instant published application. No new matter has been added. There are a total of 20 claims. Thus, no fees are believed to be due in connection with this Response. Reconsideration of the application, as amended, is respectfully requested.

Overview of the Office Action

Claims 1 and 2 stand rejected under 35 U.S.C. §102(b) as anticipated by U.S. Publication No. 2002/0045030 (“*Ozin*”).

Claims 1, 4, 6, 8, 10, 12 and 18 stand rejected under 35 U.S.C. §103(a) as obvious over U.S. Patent No. 6,830,494 (“*Yamazaki*”) in view of *Ozin*, while claims 2 and 9 stand rejected as obvious over *Yamazaki* in view of *Ozin*, and further in view of U.S. Patent No. 6,630,785 (“*Lu*”).

Applicants have carefully considered the Examiner’s rejection, and the comments provided in support thereof, and respectfully disagree with the Examiner’s analysis. For the reasons which follow, it is respectfully submitted that all claims of the present application are patentable over the applied references.

Summary of the Subject Matter Disclosed in the Specification

The following descriptive details are based on the specification. They are provided only for the convenience of the Examiner as part of the discussion presented herein, and are not intended to argue limitations which are unclaimed.

A method for fabricating a plurality of semiconductor bodies is disclosed. The disclosed method deposits material on a substrate layer and is performed by forming a multilayered structure by coating the substrate layer with a spacer/pattern layer, and pressing a cover layer against the spacer/pattern layer. The multilayered structure is dipped into solution containing the material for a sufficient length of time to allow the solution to spread through capillary action to a predetermined region defined by the spacer/pattern layer. The cover layer is removed from the spacer/pattern layer, leaving behind the substrate layer coated with the spacer/pattern layer and the solution which is spread to the predetermined region defined by the spacer/pattern layer.

An alternate embodiment of the inventive method is performed by the additional steps of pressing a second cover layer against the spacer/pattern layer to form a second multilayered structure; dipping the second multilayered structure into a second solution containing the second material for a sufficient length of time to allow the second solution to spread through capillary action to the second region; and removing the second cover layer from the spacer/pattern layer, leaving behind the substrate layer coated with the spacer/pattern layer and the solution which is spread to the predetermined region defined by the spacer/pattern layer.

In yet another disclosed embodiment, the pressing step is performed by pressing a cover layer attached to a remaining part of the spacer/pattern layer against the first part of the spacer/pattern layer to form a complete spacer/pattern layer.

Descriptive Summary of the Prior Art

Ozin discloses “a method of synthesizing crystalline photonic crystals on the surfaces of, or embedded within, substrates and optical utility thereof” (see paragraph [0002]).

Yamazaki discloses high-speed processing for the formation of an EL layer using an ink-jet method (see Abstract).

Lu discloses “a surface treatment process for fabricating a panel of an OLED having [a] relatively high resolution and [a] relatively low thickness” (see col. 2, lines 54-56).

Patentability of the Amended Independent Claims over the Prior Art Under 35 U.S.C. §102

Independent claims 1, 8 and 18 have been amended to recite “leaving behind said substrate layer coated with said spacer/pattern layer and said solution spread to said predetermined region defined by said spacer/pattern layer”. Support for this limitation may be found, for example, at paragraph [0036] of the published application. No new matter has been added.

Ozin (paragraph [0119]) states that “the present invention discloses six, straightforward, rapid, reproducible and inexpensive methods that combine microfluidic and spin-coating, dip coating and two new methodologies with colloidal crystal self-assembly and lithography to produce patterned crystalline colloidal crystals embedded on the surface of or within substrates, such as but not limited to, semiconductor wafers”. *Ozin* thus teaches six methods wherein several coating methods are combined with colloidal crystal self-assembly and lithography to produce patterned crystalline colloidal crystals. However, each of the disclosed methods in *Ozin* fails to teach that a spacer/pattern layer is used between a substrate and a cover layer, which was formed in a discrete, separate method step, i.e., the claimed step (i), as a separate spacer/pattern layer, in the manner recited in amended independent claims 1, 8 and 18.

More specifically, the first method (i.e., paragraphs [0125] and [0126]), the second method 2 (i.e., paragraph [0144]), the fourth method (i.e., paragraph [0185]) and the fifth method (i.e., paragraph [0190]) of *Ozin* each disclose the use of substrates that are pre-structured and, thus, fail to contain a separate spacer/pattern layer, as recited in amended independent claims 1, 8 and 18. Moreover, the third method (i.e., paragraph [0170]) and the sixth method (i.e., paragraph [0199]) of *Ozin* each disclose the use of an elastomeric patterned stamp, which is placed on a substrate to create channels on a flat substrate and, thus, fail to disclose the claimed method steps, i.e., method steps (i) and (ii) of creating a spacer/pattern layer and pressing a cover against the spacer/pattern layer, as recited in independent claims 1, 8 and 18. The result of each of these methods taught in *Ozin* are patterned substrates (e.g. methods 1 and 2) or structured layers on the substrate, without any spacer being located between them (e.g. methods 3 and 6) after removal of the cover layer or patterned stamp, respectively.

In contrast, independent claims 1, 8 and 18 define that a spacer/pattern layer on the substrate, which is not removed after the predetermined regions defined by the spacer/pattern layer are filled by the material. In the claimed invention, only the additional cover layer is removed. As a result, a layer is located on the flat substrate that consists of the desired material and the separate spacer/pattern layer that structures the material. *Ozin* fails to teach such a claimed configuration. Therefore, *Ozin* fails to anticipate independent claims 1, 8 and 18.

Patentability of the independent claims over the Prior Art under 35 U.S.C. §103

The Examiner (pg. 3 of the Office Action) concedes that *Yamazaki* fails to teach or suggest the claimed invention. *Ozin* has been cited to provide what *Yamazaki* lacks, i.e., “pressing a cover layer onto a pattern layer, dipping the substrate to form EL layers through capillary action, and removing the cover layer”. However, the combination of *Yamazaki* and

Ozin fails to achieve the claimed invention, as recited in amended independent claims 1, 8 and 18.

Yamazaki teaches a method for forming a light emitting layer across a plurality of pixels using ink-jetting. However, *Yamazaki* fails to teach or suggest a dipping method or the usage of a cover layer that is removed after applying the light emitting layer. Applicants respectfully assert that a person with ordinary skill in the art would not seek to combine the ink-jetting method of *Yamazaki* with any one of the methods disclosed in *Ozin* to obtain a patterned coating by leaving behind a substrate layer coated with a spacer/pattern layer and a solution spread to a predetermined region defined by the spacer/pattern layer, as disclosed and claimed. Absent an impermissible hindsight reconstruction based on Applicants' own teachings in the instant application, it would not be obvious to the skilled person to obtain the invention recited in independent claims 1, 8 and 18. For at least this reason, Applicants respectfully assert that amended independent claims 1, 8 and 18 are patentable over the combination of *Yamazaki* and *Lu*.

The Examiner has combined *Lu* with *Yamazaki* and *Ozin* to reject dependent claims 2 and 9. However, it is clear that *Yamazaki*, *Ozin* and *Lu*, applied individually or in combination, fail to bridge the above-discussed gaps between the method recited in independent claims 1 and 8, respectively. Accordingly, dependent claims 2 and 9 are patentable over the combination of *Yamazaki*, *Ozin* and/or *Lu* based on their various dependencies on claims 1 or 8. Therefore, reconsideration and withdrawal of the rejections under 35 U.S.C. §103(a) are respectfully requested, and a notice to that effect is earnestly solicited.

Dependent claims

In view of the patentability of independent claims 1, 8 and 18, for the reasons presented above, each of dependent claims 2, 4, 6, 9 and 10, as well as new dependent claims 19-21, is patentable therewith over the prior art. Moreover, each of these claims includes features which serve to even more clearly distinguish the invention over the applied references.

For example, independent claims 2 and 9 have been amended to define that the spacer/pattern layer defining the predetermined region forms at least one channel along at least one edge of the spacer/pattern layer, as disclosed at paragraph [0032] of the instant published application. The cited prior art fails to teach or suggest this claimed feature. *Ozin*, for example, teaches structured substrates and patterned stamps. Therefore, claims 2 and 9 are also patentable.

In addition, new dependent claims 19-21 are directed to the structuring of light emitting polymers or conducting polymers, as disclosed, for example, at paragraph [0035] of the instant published application. *Yamazaki*, *Ozin* and *Lu*, individually or in combination, fail to teach or suggest this claimed feature. For example, *Ozin* teaches that liquid crystals are structured (see e.g. paragraph [0119]). Therefore, new dependent claims 19-21 are also patentable.

Conclusion

Based on all of the above, it is respectfully submitted that the present application is now in proper condition for allowance. Prompt and favorable action to this effect and early passing of this application to issue are respectfully solicited.

Should the Examiner have any comments, questions, suggestions or objections, the Examiner is respectfully requested to telephone the undersigned in order to facilitate reaching a resolution of any outstanding issues.

It is believed that no fees or charges are required at this time in connection with the present application. However, if any fees or charges are required at this time, they may be charged to our Patent and Trademark Office Deposit Account No. 03-2412.

Respectfully submitted,
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